REMARKS

Reconsideration of this application as amended is respectfully requested.

Claims 1, 3-7, 10-11, and 17-18 stand rejected under 35 § U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,169,735 by Allen, Jr. et al. ("Allen") in view of U.S. Patent No. 6438612 by Ylonen et al ("Ylonen"). Claims 2, 8-9 and 12-13 stand rejected under 35 § U.S.C. 103(a) as being unpatentable over Allen in view of Ylonen and further in view of U.S. Patent No. 6064,651 by Rogers et al. Claims 14-16 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims. Claim 19 is allowed.

Claims 1, 17, and 18 have been amended. New claim 20 has been added. It is respectfully submitted that the new claim(s) and the amendments do not add new matter. Applicants amended claims 1, 17, and 18 to add inherent limitations in these claims. Applicants reserve all rights with respect to the application of the doctrine equivalents. Applicants respectfully request the Examiner to accept the submission of formal drawings submitted with this amendment.

The Examiner has rejected Claims 1, 3-7, 10-11, and 17-18 under 35 § U.S.C. 103(a) as being unpatentable over Allen in view of Ylonen. The Examiner states:

> Allen, Jr. et al. disclose nearly all the subject matter now claimed. Note col. 6 lines 43-50 which recite the method for transporting voice data from an originating location to a destination whereby the transporting is enabled by emulating a circuit by employing a circuit emulation service CES wherein the voice data is converted to ATM cells utilizing ATM _adaptation layer 1 AAL1 or ATM adaptation layer 2 AAL2 and col. 16 line 55 to col. 17 line 8 which recite that the invention also applies to Internet services providers whereby the *Internet user typically accesses the Internet by connecting to the Internet service provider via a dial up modem; however, unlike a voice connection, a modem connection carries bursty data with Internet Protocol IP packets clearly anticipate the method including the step of configuring a circuit emulation service CES over an Internet protocol IP network* and the step of transporting the IP

packets from a local interworking function to a remote interworking function according to the CES as in claims 1, 17, and 18. Col. 16 line 55 to col. 17 line 8 which recite converting ATM data to IP packets and the Internet service providers transporting IP packets to the Internet user via the dial up modem and col. 10 line 64 to col. 11 line 5 which recite the AAL1 or AAL2 allow the choice o£ carrying voice trunks through an ATM network as constant bit rate traffic or variable bit rate traffic and that if voice is sent as constant bit rate traffic, then ATM Forum's structured DSI nx64 Kbps circulation emulation service using AAL1 is employed and if voice is sent as real time variable bit rate traffic, then AAL2 as the ATM adaptation layer is employed, thus taking advantage of the many efficiency and performance enhancing features supported by AAL2 clearly anticipate encapsulating data at a constant bit rate at the local interworking function into IP packets and transporting IP packets as in claims 1, 17, and 18. Col. 6 lines 3-22 which recite the use of a centralized control and signaling interworking function CS-IWF device for performing call control functions and using AAL2 to support silence suppression and/or voice compression
clearly anticipate exchanging CES control protocol information between the local and remote interworking function as in claim 6 and including the compression option as in claim 7. Col. 14
lines 19-40 which recite the step of buffering to accommodate cell delay variation introduced by the network and cell construction delay clearly anticipate the step of buffering IP packets for at least as long as the maximum delay variation as in claims 10-11.

Allen, Jr. et al. did not recite the tunnel between the local and remote interworking functions as in claims 1, 17, 18 to carry IP packets as in claim 3, wherein the tunnel includes
layer 2 tunneling protocol L2TP as in claim 4 and the multi- protocol label switching tunnel as in claim 5.

Ylonen et al. teach that it is known to use multi-protocol label switching MPLS to carry labels that identify the virtual network that the packets belong to and alternatively, the L2TP protocol can be used to tunnel PPP point-to-point protocol streams over networks, and can also be used to carry labeling information as set forth at col. 2 lines 53-59 in the field of I electrical computers and digital processing systems: multiple computer or process coordinating for the purpose of providing and enhancing secure transmission of data packets in a network having virtual routers which clearly anticipate the tunnel between the local and remote interworking functions to carry IP packets wherein the tunnel includes layer 2 tunneling protocol L2TP and the multi-protocol label switching tunnel.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the tunnel between the local and remote interworking functions to carry IP packets wherein the tunnel includes layer 2 tunneling protocol L2TP and the multi-protocol label switching tunnel are used as in Ylonen et al. because Ylonen et al. teach the desirable added feature of secure transmission of data packets in a

network having virtual routers and said added feature of secure transmission being desirable to achieve more efficient system operation in Allen Jr. et al.

(Office Action dated September 12, 2002, pp. 2-6)

However, applicants respectfully submit that claim 1, as amended, is not obvious under 35 § U.S.C. 103(a) in view of Allen and Ylonen. Claim 1, as amended, includes the following limitations:

> 1. A method comprising:
> configuring a circuit emulation service (CES) over an internet protocol (IP) network based on properties of the IP network, the CES being configured to establish a tunnel between a local interworking function and a remote interworking function;
> encapsulating data received at a constant bit rate at the local interworking function into a plurality of IP packets configured according to the CES, wherein the plurality of IP packets includes a first IP packet having a variable length; and
> transporting the IP packets from the local interworking function to the remote interworking function according to the CES.

(emphasis added)

In contrast Allen discloses and suggests use ATM cells having a fixed length. In the definition of Asynchronous Transfer Mode, the Techweb encyclopedia states:

> *ATM works by transmitting all traffic as fixed-length, 53-byte cells.* This fixed unit allows very fast switches to be built, because it is much faster to process a known packet size than to figure out the start and end of variable length packets. The small ATM packet also ensures that voice and video can be inserted into the stream often enough for realtime transmission.

(Web Page: http://www.techweb.com/encyclopedia/defineterm?term=atm&x=34&y=12)

(emphasis added)

Allen discloses:

> *ATM-based* distributed virtual tandem switching system.

(Allen, Title) (emphasis added)

Allen further discloses:

> An *Asynchronous Transfer Mode (ATM)-based* distributed virtual tandem switching system is provided in which a network of *ATM-based devices.*

(Allen, abstract) (emphasis added)

Allen further discloses:

> Silence suppression is a mechanism for saving extra network bandwidth by not transmitting the pauses in a voice conversation into the network. Silence suppression can be employed on the sender's end by not generating voice samples when the speech level is below a threshold.

(Allen, Col. 13 Lns. 56-59) (emphasis added)

> Silence suppression also increases the ATM cell construction delay and adds variability to the delay.

(Allen, Col. 14 Lns. 4-6) (emphasis added)

> [T]he ATM cell construction delay, when employing the AAL1 circuit emulation service, is fixed. As mentioned above, for 64 Kbps pulse code modulated (PCM) voice, it takes six milliseconds to fill an ATM cell with a single voice channel. The total echo path time is thus 12 milliseconds plus additional transit and buffering delays. For compressed voice, for example 32 Kbps using ADPCM, *the delay will be doubled to 24 milliseconds because it now takes twice as long to fill an ATM cell* with the speech data of a single voice channel.

(Allen, Col. 14 Lns. 30-40) (emphasis added)

To summarize, the ATM cell construction delay time increases as more suppressed voice samples *are not* put into the fixed sized ATM cells because a user must talk long before the fixed size 53-byte ATM cell is full. Thus, Allen does not disclose or suggest the use of IP packets having a variable length. Claim 1 includes the

limitation "wherein the plurality of IP packets includes a first IP packet having a variable length." Therefore, Allen does not disclose or suggest the limitations stated in claim 1. In fact, Allen teaches away from the limitations stated in claim 1.

Allen also does not disclose encapsulating data into a plurality of IP packets and transporting the IP packets configured according a circuit emulation service. Allen discloses:

> The present invention facilitates a more efficient way of carrying dial up Internet connections. Currently, an Internet user typically accesses the Internet by connecting to the Internet service provider via a dial up modem. That style of connection consumes resources in the PSTN network just like a regular voice connection. *However, unlike a voice connection, a modem connection carries bursty data with Internet Protocol (IP) packets. It is wasteful for bursty data to be carried by TDM circuits. Thus, the T-IWF provides an ideal place to implement a modem pool that terminates the dial up connections and converts them to ATM connections.* These ATM connections can be carried by the ATM network to the respective Internet service providers. Depending on the Internet service provider's ability to receive ATM connections, these connections may be delivered to the Internet service provider as ATM, or be *converted back to IP packets.* The modem termination capability on the T-IWF helps make more efficient use of network resources by *carrying Internet traffic as data traffic using ATM connections.*

(Allen, Col. 16 Ln. 55 to Col. 17 Ln. 8) (emphasis added)

Claim 1, as amended, includes the limitation "encapsulating data received at a constant bit rate at the local interworking function into a plurality of IP packets configured according to the circuit emulation service." Claim 1 also includes the limitation "transporting the IP packets from the local interworking function to the remote interworking function according to the circuit emulation service."

Allen explicitly teaches against encapsulating data into a plurality of IP packets and transporting the IP packets from the local interworking function to the remote interworking function. Allen states that "it is wasteful for bursty data in IP packets to be

encapsulated and transported by TDM circuits." (Allen, Col. 16 Lns. 63-64) Rather, Allen teaches terminating the IP packets and converting the data to be transported by ATM cells. (see Allen, Col. 16 Ln. 55 to Col. 17 Ln. 8) Allen explicitly teaches against encapsulating data into a plurality of IP packets and transporting the IP packets configured according to the circuit emulation service.

In contrast, Allen discloses an ATM-based distributed virtual tandem switching system including an ATM switching network, a trunk interworking function (TIWF) device, and a centralized control and signaling interworking function (CS-IWF). In particular, Allen discloses a method of employing a CES to transport voice, converting an origination trunk to ATM cells and transmitting the voice within the ATM cells (see col. 6, lines 43-50). Moreover, Allen discloses a method of converting bursty data with IP packets to ATM connections and carrying the ATM connections by ATM network (see col. 16, line 55 to col. 17, line 8).

Therefore, Allen does not disclose or suggest the limitations stated in claim 1 and, in fact, explicitly teaches away from the limitations stated in claim 1.

Applicants respectfully assert that Ylonen does not disclose encapsulating data into a plurality of IP packets configured according to the circuit emulation service. Further, Applicants respectfully assert that Ylonen does not disclose transporting the IP packets according to the circuit emulation service. Therefore, Ylonen does not disclose or suggest the limitations stated in claim 1.

Therefore, Ylonen does not disclose each and every limitation of claim 1.

It is also respectfully submitted that Allen does not suggest a combination with Ylonen, and Ylonen does not suggest a combination with Allen because Allen

specifically teaches away from such a combination. It would be impermissible hindsight to combine Allen with Ylonen based on applicants' own disclosure.

Furthermore, even if Allen and Ylonen were combined, such a combination would lack a method of encapsulating data received at a constant bit rate at the local interworking function into a plurality of IP packets configured according to the CES as recited in claim 1. By way of contrast, the combination of Allen and Ylonen would disclose a method of converting a stream of voice cells to fixed length ATM cells.

Another distinction of claim 1 over the combination of Allen and Ylonen is a method of transporting the IP packets from the local interworking function to the remote interworking function according to the CES as recited in claim 1. By way of contrast, the combination of Allen and Ylonen would disclose a method of transmitting the stream of cells within the fixed length ATM cells.

Therefore, in view of the above distinction, neither Allen nor Ylonen, individually or in combination, disclose each and every limitation of claim 1. As such, claim 1, as amended, is not rendered obvious by Allen in view of Ylonen under 35 U.S.C. § 103(a).

Given that claims 2-16 depend from claim 1, applicants submit that claims 2-16 are not obvious over Allen in view of Ylonen.

Likewise, independent claim 17, as amended, includes the limitation "encapsulating data received at a constant bit rate at the local interworking function into a plurality of IP packets configured according to the CES, wherein the plurality of IP packets includes a first IP packet having a variable length." Independent claim 17, as amended, also includes the limitation "transporting the IP packets from the local interworking function to the remote interworking function according to the CES."

Therefore, in view of the above distinction, neither Allen nor Ylonen, individually or in combination, disclose each and every limitation of claim 17. As such, claim 17 is not rendered obvious by Allen in view of Ylonen under 35 U.S.C. § 103(a).

Likewise, independent claim 18, as amended, includes the limitation "encapsulate data received at a constant bit rate at the local interworking function into a plurality of IP packets configured according to the CES, wherein the plurality of IP packets includes a first IP packet having a variable length." Independent claim 18, as amended, also includes the limitation "transport the IP packets from the local interworking function to the remote interworking function according to the CES."

Therefore, in view of the above distinction, neither Allen nor Ylonen, individually or in combination, disclose each and every limitation of claim 18. As such, claim 18 is not rendered obvious by Allen in view of Ylonen under 35 U.S.C. § 103(a).

Applicants respectfully assert that Rogers does not disclose encapsulating data into a plurality of IP packets configured according to the circuit emulation service. Further, Applicants respectfully assert that Rogers does not disclose transporting the IP packets according to the circuit emulation service. Therefore, Rogers does not disclose or suggest the limitations stated in claim 1.

Therefore, in view of the above distinction, neither Allen, Ylonen, nor Rodgers, individually or in combination, disclose each and every limitation of claim 1. As such, claim 1 is not rendered obvious by Allen in view of Ylonen and in further view of Rodgers under 35 U.S.C. § 103(a).

Given that claims 2-16 depend from claim 1, applicants submit that claims 2-16 are not obvious over Allen in view of Ylonen and in further view of Rodgers.

Likewise, independent claim 17, as amended, includes the limitation "encapsulating data received at a constant bit rate at the local interworking function into a plurality of IP packets configured according to the CES, wherein the plurality of IP packets includes a first IP packet having a variable length." Independent claim 17, as amended, also includes the limitation "transporting the IP packets from the local interworking function to the remote interworking function according to the CES."

Therefore, in view of the above distinction, neither Allen, Ylonen, nor Rodgers, individually or in combination, disclose each and every limitation of claim 17. As such, claim 17 is not rendered obvious by Allen in view of Ylonen and in further view of Rodgers under 35 U.S.C. § 103(a).

Likewise, independent claim 18, as amended, includes the limitation "encapsulate data received at a constant bit rate at the local interworking function into a plurality of IP packets configured according to the CES, wherein the plurality of IP packets includes a first IP packet having a variable length." Independent claim 18, as amended, also includes the limitation "transport the IP packets from the local interworking function to the remote interworking function according to the CES."

Therefore, in view of the above distinction, neither Allen, Ylonen, nor Rodgers, individually or in combination, disclose each and every limitation of claim 18. As such, claim 18 is not rendered obvious by Allen in view of Ylonen and in further view of Rodgers under 35 U.S.C. § 103(a).

Allowable Subject Matter

The Examiner stated Claim 19 is allowed. Applicants respectfully submit that new claim 20 is in a condition for allowance for similar reasons.

Conclusion

It is respectfully submitted that in view of the amendments and remarks set forth herein, the rejections and objections have been overcome. If there are any additional charges, please charge them to our Deposit Account No. 02-2666. If the Examiner feels a telephone conversation would be helpful, then the Examiner is encouraged to call me at 408-720-8300.

Respectfully submitted,
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Dated: 3-17-, 2003

Thomas S. Ferrill
Registration No. 42,532

12400 Wilshire Boulevard
Seventh Floor
Los Angeles, CA 90025-1026
(408) 720-8300

VERSION OF SPECIFICATION AND CLAIMS WITH MARKINGS:

IN THE CLAIMS:

1. (Amended) A method comprising:

configuring a circuit emulation service (CES) over an internet protocol (IP) network based on properties of the IP network, the CES being configured to establish a tunnel between a local interworking function and a remote interworking function;

encapsulating data received at a constant bit rate at the local interworking function into a plurality of IP packets configured according to the CES, wherein the plurality of IP packets includes a first IP packet having a variable length; and

transporting the IP packets from the local interworking function to the remote interworking function according to the CES.

17. (Amended) An article of manufacture comprising:

a machine readable storage medium having stored thereon a plurality machine executable instructions; and

said instructions, when executed, to implement a method comprising

configuring a circuit emulation service (CES) over an internet protocol (IP) network based on properties of the IP network, the CES being configured to establish a tunnel between a local interworking function and a remote interworking function;

encapsulating data received at a constant bit rate at the local interworking function into a plurality of IP packets configured according to the CES, wherein the plurality of IP packets includes a first IP packet having a variable length; and

transporting the IP packets from the local interworking function to the remote interworking function according to the CES.

18. (Amended) An apparatus comprising:

first circuitry to configure a circuit emulation service (CES) over an internet protocol (IP) network based on properties of the IP network, the CES being configured to establish a tunnel between a local interworking function and a remote interworking function;

second circuitry to encapsulate data received at a constant bit rate at the local interworking function into a plurality of IP packets configured according to the CES, wherein the plurality of IP packets includes a first IP packet having a variable length; and

third circuitry to transport the IP packets from the local interworking function to the remote interworking function according to the CES.

20. (New) An apparatus, comprising:

means for configuring a circuit emulation service (CES) over an internet protocol (IP) network based on properties of the IP network, the CES being configured between a first interworking function to a second interworking function;

means for encapsulating data received at a constant bit rate at the first interworking function into a first plurality of IP packets configured according to the CES;

means for encapsulating data received at the constant bit rate at the second interworking function into a second plurality of IP packets configured according to the CES;

means for transporting the first plurality of IP packets from the first interworking function to the second interworking function according to the CES;

means for transporting the second plurality of IP packets from the second interworking function to the first interworking function according to the CES;

means for buffering the second plurality of IP packets at the first interworking function for at least as long as a maximum delay variation, said maximum delay variation comprising delay due to out-of-order IP packet delivery;

means for outputting payloads of the second plurality of IP packets at the constant bit rate;

means for buffering the first plurality of IP packets at the second interworking function for at least as long as the maximum delay variation; and

means for outputting payloads of the first plurality of IP packets at the constant bit rate.